Device Properties

Bluetooth® Document

- **Version Date:** 2025-08-19

Abstract:

This document contains the definitions for all device properties.

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1 Introduction

A device property provides a usage context for a Generic Attribute Profile (GATT) characteristic. The characteristic defines the data format and the representation of the underlying data value(s). Some device properties define additional representation of the underlying data values represented by the associated GATT characteristics. Each device property is identified by an assigned 16-bit Property ID, which is associated with a GATT characteristic as defined either in the GATT Specification Supplement (GSS) [2] or in the Bluetooth Core Specification [9].

When a characteristic has more than one field, a description of context is generally provided for each field. Note that in order to parse a characteristic referenced by a device property, all characteristics referenced are required to either be of a fixed length or have a deterministic length based on the contents of the characteristic.

This is not a Bluetooth specification, therefore, the established Bluetooth SIG specification language conventions for use of the words ***shall***, ***shall not***, ***must***, ***should***, ***should not***, ***may***, and ***can*** do not apply to this document.

2 Properties

2.1 Ambient Temperature property group

This category contains the property definitions related to the air temperature surrounding a device.

2.1.1 Average Ambient Temperature in a Period of Day property

This property represents an average ambient temperature measured over a period of time during the day.

A period of time is represented with a start time of 0, which corresponds to midnight (local time), and the maximum value for the end time is 23.9. The values reported represent the measured average values for the periods in the past 24 hours.

Example use case: If the current time is 11:00, and an average is reported for a time period with a start value of 11.5 and with an end value of 11.6 (corresponding to a time period from 11:30 to 11:36), then that measurement represents the average temperature of that time period during the previous day.

Characteristic: Temperature 8 in a Period of Day

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Start Time
Width	If End Time is greater than or equal to Start Time: End Time - Start Time Otherwise: End Time - Start Time + 24
Value	Temperature

Table 2.1: Mapping from property fields to characteristic fields

2.1.2 Desired Ambient Temperature property

This property represents a desired ambient air temperature as set on a temperature control such as a user-controlled dial.

Characteristic: Temperature 8

2.1.3 Indoor Ambient Temperature Statistical Values property

This property represents the average, standard deviation, and minimum and maximum values for a set of measured ambient indoor temperatures, and the period of time over which the measurements were taken.

Characteristic: Temperature 8 Statistics

2.1.4 Outdoor Statistical Values property

This property represents the average, standard deviation, and minimum and maximum values for a set measured ambient outdoor temperatures, and the period of time over which the measurements were taken.

Characteristic: Temperature 8 Statistics

2.1.5 Precise Present Ambient Temperature property

This property represents ambient indoor or outdoor air temperature, using the more precise Temperature characteristic, as measured by a temperature sensor.

Characteristic: Temperature

2.1.6 Present Ambient Temperature property

This property represents an ambient indoor or outdoor air temperature as measured by a temperature sensor.

Characteristic: Temperature 8

2.1.7 Present Indoor Ambient Temperature property

This property represents an indoor ambient air temperature as measured by a temperature sensor. This property is typically used for indoor sensors, and is not intended for outdoor use.

Characteristic: Temperature 8

2.1.8 Present Outdoor Ambient Temperature property

This property represents an outdoor ambient air temperature as measured by a temperature sensor. This property is typically for outdoor sensors, and is not intended to be used for indoor sensors.

Characteristic: Temperature 8

2.2 Device Operating Temperature property group

This category contains the property definitions related to the operating temperature of a device.

Example use case: To monitor the temperature of an LED fixture or a refrigerator.

2.2.1 Device Operating Temperature Range Specification property

This property represents the minimum and maximum operating temperatures for the element. These parameters are used to detect under and over temperature events.

Characteristic: Temperature Range

2.2.2 Device Operating Temperature Statistical Values property

This property represents the average, standard deviation, minimum, and maximum operating temperatures and the data recording period as recorded by a temperature sensor. A value of 0 for the data recording period indicates that the period is the lifetime of the sensor.

Example use case: These lifetime values for the operating temperature of an LED fixture can be used to predict the remaining lifetime of the fixture, which is strongly dependent on the operating temperature.

Characteristic: Temperature Statistics

2.2.3 Device Over Temperature Event Statistics property

This property represents a count of the total number of operating over-temperature events, the average duration of the events, the time elapsed since the over-temperature event, and the total data recording period.

Example use case: To verify whether food items in a refrigerator have been exposed to high temperature.

Characteristic: Event Statistics

2.2.4 Device Under Temperature Event Statistics property

This property represents a count of the total number of operating under-temperature events, the average duration of the events, the time elapsed since the last under-temperature event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.2.5 Present Device Operating Temperature property

This property represents the temperature of an element as measured by a temperature sensor.

Characteristic: Temperature

2.2.6 Relative Runtime in a Device Operating Temperature Range property

This property represents a relative runtime of a device within an operating temperature range. The Relative Value is the relative runtime, that is, the runtime within the interval compared with the total runtime recorded by the device. See the Total Device Runtime property in Section 2.14.8. The Minimum Temperature Value and Maximum Temperature Value define the operating temperature range.

Example use case: To check whether the element has been operating within the specified operating temperature boundaries for warranty purposes, or to predict remaining life of the device.

Characteristic: Relative Value in a Temperature Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Temperature Value
Width	Maximum Temperature Value - Minimum Temperature Value
Value	Relative Value

Table 2.2: Mapping from property fields to characteristic fields

2.3 Electrical Input property group

This category contains the property definitions related to the electrical input of a device such as input voltage and ripple voltage. These properties can be monitored to check whether the device is running at the right input conditions. They also can be used to monitor the performance of the electrical power distribution within a building, or to monitor the performance of the power supplies powering a device.

2.3.1 Average Input Current property

This property represents the average current for the element. It consists of the average current value and the averaging period.

Characteristic: Average Current

2.3.2 Average Input Voltage property

This property represents the average voltage for the element. It consists of the average voltage value and the averaging period.

Characteristic: Average Voltage

2.3.3 Input Current Range Specification property

This property represents the minimum, typical, and maximum input current range specification values. These values can be used together with the measured input current to check whether or not the device is operating within its specification.

Characteristic: Electric Current Specification

2.3.4 Input Current Statistics property

This property represents the average, standard deviation, minimum, and maximum values of the input current and the data recording period.

Characteristic: Electric Current Statistics

2.3.5 Input Over Current Event Statistics property

This property represents a count of the total number of over-current events, the average duration of the events, time elapsed since the over-current event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.3.6 Input Over Ripple Voltage Event Statistics property

This property represents a count of the total number of over-ripple-voltage events, the average duration of the events, the time elapsed since the over-voltage event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.3.7 Input Over Voltage Event Statistics property

This property represents a count of the total number of over-voltage events, the average duration of the events, the time elapsed since the over-voltage event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.3.8 Input Under Current Event Statistics property

This property represents a count of the total number of under-current events, the average duration of the events, the time elapsed since the over-current event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.3.9 Input Under Voltage Event Statistics property

This property represents a count of the total number of under-voltage events, the average duration of the events, the time elapsed since the over-voltage event, and the total data recording period.

Example use case: To verify whether manufacturer warranty conditions have been maintained.

Characteristic: Event Statistics

2.3.10 Input Voltage Range Specification property

This property represents the minimum, typical, and maximum input voltage range as specified for a device.

Example use case: When these values are used together with the measured input voltages, verifying whether the device is operating within specification.

Characteristic: Voltage Specification

2.3.11 Input Voltage Ripple Specification property

This property represents the maximum allowed relative ripple voltage for the device. The relative ripple voltage is the ripple value divided by the average voltage (as reported by the Average Input Voltage property in Section 2.3.2).

Characteristic: Percentage 8

2.3.12 Input Voltage Statistics property

This property represents the average, standard deviation, minimum and maximum values for the input voltage and the data recording period.

Characteristic: Voltage Statistics

2.3.13 Present Input Current property

This property represents the input current for the device.

Characteristic: Electric Current

2.3.14 Present Input Ripple Voltage property

This property represents the measured relative ripple voltage value. The relative ripple voltage is the ripple voltage value divided by the average voltage (as reported by the Average Input Voltage property in Section 2.3.2).

Example use case: For early detection of power supply failure, identifying whether capacitors in a power supply are starting to fail based on an increase in the ripple voltage.

Characteristic: Percentage 8

2.3.15 Present Input Voltage property

This property represents the input voltage for the device.

Characteristic: Voltage

2.3.16 Relative Runtime in an Input Current Range property

This property represents a relative runtime of a device within a current range.

Example use case: To update a column in a bar chart in order to check whether or not the device powered by the supply has been operating within the specified current boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Relative Runtime in a Current Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Current
Width	Maximum Current - Minimum Current
Value	Relative Runtime Value

Table 2.3: Mapping from property fields to characteristic fields

2.3.17 Relative Runtime in an Input Voltage Range property

This property represents a relative runtime of a device within a voltage range.

Example use case: To update a column in a bar chart in order to check whether or not the device powered by the supply has been operating within the specified voltage boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Relative Value in a Voltage Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Voltage
Width	Maximum Voltage - Minimum Voltage
Value	Relative Value

Table 2.4: Mapping from property fields to characteristic fields

2.4 Energy Management property group

This category contains the property definitions related to the energy management of a device.

Example use case: To monitor the energy use of devices such as a heater or a light fixture by enabling building information services to report aggregate energy usage, and report high-energy-use devices. Such information could be used to decide which devices to replace with more efficient devices, or to reduce energy usage by reducing the energy-use level or total operating time for high-energy-use devices.

2.4.1 Active Energy Loadside property

This property represents the active energy loadside used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Energy 32

2.4.2 Active Power Loadside property

This property represents the active power loadside used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Power

2.4.3 Apparent Energy property

This property represents the apparent energy used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Apparent Energy 32

2.4.4 Apparent Power property

This property represents the apparent power that is the product of the RMS values of the voltage and the current, expressed as volt-amperes.

Characteristic: Apparent Power

2.4.5 Device Energy Use Since Turn On property

This property reports the energy used by the element since it was turned on. The runtime since turn on can be obtained from the Device Runtime Since Turn On property in Section 2.14.1.

Characteristic: Energy

2.4.6 Device Power Range Specification property

The Power Range Specification property represents the minimum, typical, and maximum power consumption of the device as specified by the manufacturer of the device.

Characteristic: Power Specification

2.4.7 Power Factor property

This property represents the ratio of the actual electrical power dissipated by an AC circuit to the product of the RMS values of current and voltage. The difference between the two values is caused by a reactance in the circuit and represents power that does no useful work.

Characteristic: Cosine of the Angle

2.4.8 Precise Total Device Energy Use property

This property represents the total energy used by a device over its lifetime.

Characteristic: Energy 32

2.4.9 Present Device Input Power property

This property reports the power usage of a device. It can be either measured by the device if the device has the capability to measure power directly, or it can be obtained from a mathematical model and a level setting value.

Characteristic: Power

2.4.10 Present Device Operating Efficiency property

This property represents the power efficiency of the operating device. The power efficiency is the useful output power divided by the total input power of the device. This efficiency is most affected by the output level or the input power conditions. The reported value either can be determined by measurement or can be calculated by the device based on manufacturer model data. This value can be used by building management systems to operate devices in a building with greater power efficiency.

Characteristic: Percentage 8

2.4.11 Relative Device Energy Use in a Period of Day property

This property represents the energy use by a device over a period of time during the day. This property can be used to update a column in a bar chart.

A period of time is represented with a start time of 0, which corresponds to midnight (local time), and the maximum value for the start time is 23.9.

The values reported represent the average values for these periods during the past 24 hours.

Example use case: If the current time is 11:00AM, and an average is reported for a time period with a start value of 11.5 and an end value of 11.7 (corresponding to a time period from 11:30AM to 11:42AM), then that measurement represents the average energy use during that time period on the previous day.

Characteristic: Energy in a Period of Day

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Start Time
Width	If End Time is greater than or equal to Start Time: End Time - Start Time Otherwise: End Time - Start Time + 24
Value	Energy Value

Table 2.5: Mapping from property fields to characteristic fields

2.4.12 Total Device Energy Use property

This property represents the total energy used by the device since meter reset. If the meter cannot be reset, then the energy usage value is the value measured over the lifetime of the element.

Characteristic: Energy

2.5 Environmental property group

This category contains property definitions related to environment conditions.

Example use case: To monitor the air quality that surrounds a device.

2.5.1 Air Pressure property

This property represents a pressure measured by an air pressure sensor. This property is for sensors designed to report measured air pressure.

Characteristic: Pressure

2.5.2 Apparent Wind Direction property

This property represents the apparent wind direction as measured by the device.

Characteristic: Apparent Wind Direction

2.5.3 Apparent Wind Speed property

This property represents the apparent wind speed as measured by the device.

Characteristic: Apparent Wind Speed

2.5.4 Coarse Ambient Relative Humidity property

This property represents the relative humidity measured by a humidity sensor.

Characteristic: Humidity 8

2.5.5 Dew Point property

This property represents the Dew Point temperature as measured by the device.

Characteristic: Dew Point

2.5.6 Gust Factor property

This property represents the gust factor as measured by the device.

Characteristic: Gust Factor

2.5.7 Heat Index property

This property represents the heat index as measured by the device.

Characteristic: Heat Index

2.5.8 Magnetic Declination property

This property represents the magnetic declination as measured by the device.

Characteristic: Magnetic Declination

2.5.9 Magnetic Flux Density - 2D property

This property represents the magnetic flux density in two dimensions as measured by the device for two orthogonal axes: X and Y.

Characteristic: Magnetic Flux Density - 2D

2.5.10 Magnetic Flux Density - 3D property

This property represents the magnetic flux density in three dimensions as measured by the device for three orthogonal axes: X, Y, and Z.

Characteristic: Magnetic Flux Density - 3D

2.5.11 Pollen Concentration property

This property represents the pollen concentration as measured by the device.

Characteristic: Pollen Concentration

2.5.12 Present Ambient Carbon Dioxide Concentration property

This property represents the present ambient carbon dioxide concentration measured by a CO_2 sensor.

Characteristic: CO_2 Concentration

2.5.13 Present Ambient Noise property

This property represents the present ambient noise level measured by a sound level sensor.

Characteristic: Noise

2.5.14 Present Ambient Relative Humidity property

This property represents the relative humidity measured by a humidity sensor.

Characteristic: Humidity

2.5.15 Present Ambient Temperature and Coarse Ambient Relative Humidity property

This property represents the combination of an ambient indoor or outdoor air temperature measured by a temperature sensor and a relative humidity measured by a humidity sensor.

Characteristics: Temperature 8

Humidity 8

This property has two fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Present Ambient Temperature	Temperature 8
Coarse Ambient Relative Humidity	Humidity 8

Table 2.6: Structure of the Present Ambient Temperature and Relative Humidity characteristic

2.5.16 Present Ambient Volatile Organic Compounds Concentration property

This property represents the present ambient volatile organic compounds concentration measured by a VOC sensor.

Characteristic: VOC Concentration

2.5.17 Present Indoor Relative Humidity property

This property represents an indoor relative humidity measured by a humidity sensor. This property is typically for sensors designed to measure indoor environmental humidity and is not intended to be used for measuring outdoor environmental humidity.

Characteristic: Humidity

2.5.18 Present Outdoor Relative Humidity property

This property represents an outdoor relative humidity measured by a humidity sensor. This property is typically for sensors designed to measure outdoor environmental humidity and is not intended to be used for measuring indoor environmental humidity.

Characteristic: Humidity

2.5.19 Present Precise Ambient Temperature and Relative Humidity property

This property represents the combination of an ambient indoor or outdoor air temperature as measured by a temperature sensor with a relative humidity measured by a humidity sensor.

Characteristics: Temperature

Humidity

This property has two fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Present Precise Ambient Temperature	Temperature
Present Ambient Relative Humidity	Humidity

Table 2.7: Structure of the Present Precise Ambient Temperature and Relative Humidity characteristic

2.5.20 Pressure property

This property represents a pressure measured by a pressure sensor. This property is typically for sensors designed to report measured pressure other than the air pressure.

Characteristic: Pressure

2.5.21 Rainfall property

This property represents the rainfall as measured by a rain sensor.

Characteristic: Rainfall

2.5.22 True Wind Direction property

This property represents the true wind direction as measured by the device.

Characteristic: True Wind Direction

2.5.23 True Wind Speed property

This property represents the true wind speed as measured by the device.

Characteristic: True Wind Speed

2.5.24 UV Index property

This property represents the UV index as measured by the device.

Characteristic: UV Index

2.5.25 Wind Chill property

This property represents the wind chill factor as measured by the device.

Characteristic: Wind Chill

2.6 General Device Information property group

This category contains property definitions related to general device information such as device appearance, manufacturing data, and total runtime.

2.6.1 Building Floor property

This property represents the building floor where the device is located. If the device does not have a fixed location, the property should be set to the value 255, which means ”no floor number is configured”.

Characteristic: Floor Number

2.6.2 Device Appearance property

This property represents the external appearance of the device. A value is composed of a category (10 bits) and a sub-category (6 bits) [9].

Characteristic: Appearance

2.6.3 Device Country of Origin property

This property represents the country of origin of the device using ISO 3166-1 numeric M49 Country codes as maintained by the United Nations [3].

Characteristic: Country Code

2.6.4 Device Date of Manufacture property

This property represents the manufacturing date for the device.

Characteristic: Date UTC

2.6.5 Device Firmware Revision property

This property represents a revision identifier for the firmware within the device.

Characteristic: Fixed String 8

2.6.6 Device Global Trade Item Number property

This property represents a 14-digit Global Trade Item Number, which is typically used in product barcodes.

Characteristic: Global Trade Item Number

2.6.7 Device Hardware Revision property

This property represents the hardware revision for the hardware within the device.

Characteristic: Fixed String 16

2.6.8 Device Manufacturer Name property

This property represents the name of the manufacturer of the device. This value is set by the manufacturer or supplier of the device.

Characteristic: Fixed String 36

2.6.9 Device Model Number property

This property represents the model number that is assigned by the device vendor.

Characteristic: Fixed String 24

2.6.10 Device Serial Number property

This property represents the serial number for a particular instance of the device.

Characteristic: Fixed String 16

2.6.11 Device Software Revision property

This property represents the software revision for the software within the device.

Characteristic: Fixed String 8

2.6.12 Local Asset Identifier property

This property represents a locally unique identifier intended for asset tracking or inventory management. The zero-length empty UTF-8 string "" indicates the value is unknown or invalid.

Example use case: An identifier from an architectural floor plan "D18237-001", an inventory asset number of a portable projector issued by an accounting department "00135897", or a device without an assigned/valid identifier with the empty string "".

Characteristic: Fixed String 36

2.6.13 Local Asset Name property

This property represents a localized asset name used to distinguish the device from other devices at its location. If the Spatial Unit Name property (see Section 3.x.y) is also supported and has a non-zero length, the Asset Local Name property provides local context within the corresponding spatial unit. The zero-length empty UTF-8 string "" indicates the value is unknown or invalid.

Example use case: The string "left-side bed" identifies the left-side bed light within a main bedroom. The string "W054" represents a wheelchair asset (with a zero-length Spatial Unit Name property) at an airport.

Characteristic: Fixed String 36

2.6.14 Spatial Unit Category property

This property represents the category or the principal function of the spatial unit the device is located in. The zero-length empty UTF-8 string "" indicates the value is unknown or invalid.

Example use case: Identify the category of room where a device is located, such as the values "classroom" or "restroom".

Characteristic: Fixed String 36

2.6.15 Spatial Unit Name property

This property represents a localized name for the immediate spatial area container in which the device is located. The zero-length empty UTF-8 string "" indicates the value is unknown or invalid.

Example use case: Identify the room in a house where a device is installed, such as "Sam's room", or the name of a store in a mall "Candy Delight". A mobile cleaning robot is configured with empty string "".

Characteristic: Fixed String 36

2.7 Light Control property group

This category contains the property definitions related to light control and defines, for example, the light control properties set in the Lighting Control Model in the Mesh Model specification [1].

2.7.1 Light Control Ambient LuxLevel On property

This property represents the minimum ambient illuminance level as measured by a lux sensor that determines if a light or a group of lights transitions from the standby state to a run state. The standby state is a state when the light is switched on and controlled, but operating at minimum level. This minimum level can be zero but can also be set to a low value for security or safety reasons. The run state is a state in which the light is switched on and operating at normal light level.

This property can be used to avoid lights being on during the day with ample daylight in a space.

Characteristic: Illuminance

2.7.2 Light Control Ambient LuxLevel Prolong property

This property represents the ambient light level for a light or a group of lights in the prolong state. The prolong state is the intermediate state in between the run state and the standby state of a light.

Characteristic: Illuminance

2.7.3 Light Control Ambient LuxLevel Standby property

This property represents the ambient light level for a light or a group of lights to remain in a standby state. The standby state is a state when the light is switched on and controlled, but operating at minimum level. This minimum level can be zero but can also be set to a low value so that the lights are never fully turned off.

Characteristic: Illuminance

2.7.4 Light Control Lightness On property

This property represents the light lightness level of a light or a group of lights in a run state.

Characteristic: Perceived Lightness

2.7.5 Light Control Lightness Prolong property

This property represents the light lightness level of a light or a group of lights when in a prolong state.

Characteristic: Perceived Lightness

2.7.6 Light Control Lightness Standby property

This property represents the perceived light lightness level of a light or a group of lights when in a standby state.

Characteristic: Perceived Lightness

2.7.7 Light Control Regulator Accuracy property

This property represents the accuracy of a proportional-integral light regulator. This represents the regulation error that does not result in changing the regulator output.

Characteristic: Percentage 8

2.7.8 Light Control Regulator Kid property

This property represents the integral coefficient K_i in a decreasing output operation mode of a proportional-integral light controller. This represents the integral coefficient when the light is decreasing its light output — indicated by the third character, d (“down”), in Kid, as opposed to the coefficient used when the light output is increasing, indicated by the third character, u (“up”), in Kiu.

Characteristic: Coefficient

2.7.9 Light Control Regulator Kiu property

This property represents the integral coefficient K_i in an increasing output operation mode of a proportional-integral light controller. This represents the integral coefficient when the light is increasing its light output — indicated by the third character, u (“up”), in Kiu, as opposed to the coefficient used when the light output is decreasing, indicated by the third character, d (“down”), in Kid.

Characteristic: Coefficient

2.7.10 Light Control Regulator Kpd property

This property represents the proportional coefficient K_p in a decreasing output operation mode of a proportional-integral light controller. This represents the proportional coefficient when the light is decreasing its light output — indicated by the third character, d (“down”), in Kpd, as opposed to the coefficient used when the light output is increasing, indicated by the third character, u (“up”), in Kpu.

Characteristic: Coefficient

2.7.11 Light Control Regulator Kpu property

This property represents the proportional coefficient K_p in an increasing output operation mode of a proportional-integral light controller. This represents the proportional coefficient when the light is increasing its light output — indicated by the third character, u (“up”), in Kpu, as opposed to the coefficient used when the light output is decreasing, indicated by the third character, d (“down”), in Kpd.

Characteristic: Coefficient

2.7.12 Light Control Time Fade property

This property represents the time a light takes to transition from a run state to a prolong state. The run state is the state when the light is running at normal light level, the prolong state is an intermediate state of a light between the run state and the standby state.

Characteristic: Time Millisecond 24

2.7.13 Light Control Time Fade On property

This property represents the time lights take to transition from a standby state to a run state.

Characteristic: Time Millisecond 24

2.7.14 Light Control Time Fade Standby Auto property

This property represents the time lights transition from a prolong state to a standby state when the transition is automatic (such as when triggered by an occupancy or light sensor).

Characteristic: Time Millisecond 24

2.7.15 Light Control Time Fade Standby Manual property

This property represents the time lights take to transition to a standby state when the transition is triggered by a manual operation (e.g., by a user operating a light switch).

Characteristic: Time Millisecond 24

2.7.16 Light Control Time Occupancy Delay property

This property represents the time delay between receiving a signal from an occupancy sensor and a light controller executing a state change as a result of the signal.

Example use case: To synchronize state changes between multiple lights.

Characteristic: Time Millisecond 24

2.7.17 Light Control Time Prolong property

This property represents the duration of the prolong state, which is the state of a device between its run state and its standby state.

Characteristic: Time Millisecond 24

2.7.18 Light Control Time Run On property

This property represents the duration of the run state after last occupancy was detected.

Example use case: To prevent lights from entering a standby state when people are still in a room and occupancy detectors fail to detect occupancy (which could occur, for example, with passive infrared motion sensors and people in the room not moving for a period of time).

Characteristic: Time Millisecond 24

2.8 Lighting property group

This category contains the property definitions related to general lighting, light sources, and light fixtures. It does not define properties related to light control (see Light Control (Section 2.7), Light LC for these properties). It also does not define properties related to detection of light (see Photometry (Section 2.11) for these).

2.8.1 Center Beam Intensity at Full Power property

This property represents the maximum center beam intensity of a beam of light, for example, as produced by a spotlight fixture or a car headlight.

Characteristic: Luminous Intensity

2.8.2 Chromaticity Tolerance property

This property represents the tolerance as a circle in the CIE 1976 [4] (u',v') diagram of the chromaticity of the light produced by a device, such as a light source or a lighting fixture. This tolerance could be dependent on the current setting, temperature, or operating history of the device.

Example use case: To replace a light in quality-sensitive lighting applications.

Characteristic: Chromaticity Tolerance

2.8.3 Color Rendering Index R9 property

This property represents the Color Rendering Index R9 value of the light output of a lamp or light fixture calculated in accordance with CIE standard CIE 13.3-1995 "Method of Measuring and Specifying Color Rendering Properties of Light Sources" [5]. The R9 value is the ninth index of the set provided by the CIE 13.3-1995 standard. It represents the precision of the rendering of red color patches, and can be an indication of how well skin tones are rendered. This index value can be dependent on the operating conditions. The value reported by the property represents the Color Rendering Index at its present state.

Characteristic: CIE 13.3-1995 Color Rendering Index

2.8.4 Color Rendering Index Ra property

This property represents the Color Rendering Index Ra value of the light output of a lamp or light fixture calculated in accordance with CIE standard CIE 13.3-1995 "Method of Measuring and Specifying Color Rendering Properties of Light Sources" [5]. The Ra value is the average of the color rendering indexes (indexes 1 through 8). This index value can be dependent on the operating conditions. The value reported by the property represents the Color Rendering Index at its present state.

Characteristic: CIE 13.3-1995 Color Rendering Index

2.8.5 Light Distribution property

This property represents luminaire light distribution. It is the projected pattern of light a fixture disperses onto a surface. It is mostly applicable for outdoor lighting.

Characteristic: Light Distribution

2.8.6 Light Source Current property

This property represents the current needed to be provided for the light source to reach the nominal output.

Characteristic: Average Current

2.8.7 Light Source On Time Not Resettable property

This property represents the total time the light source has been on since manufacturing. This property is not resettable.

Characteristic: Time Second 32

2.8.8 Light Source On Time Resettable property

This property represents the total time the light source has been on since the last timer reset.

Characteristic: Time Second 32

2.8.9 Light Source Open Circuit Statistics property

This property represents a count of the total number of light source open circuit events in the light source, the average duration of the events, the time elapsed since the last open circuit event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.8.10 Light Source Overall Failures Statistics property

This property represents a count of the total number of light source failure events in the light source, the average duration of the events, the time elapsed since the last overall failure event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.8.11 Light Source Short Circuit Statistics property

This property represents a count of the total number of light source short circuit events in the light source, the average duration of the events, the time elapsed since the last short circuit event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.8.12 Light Source Start Counter Resettable property

This property represents the number of times a light source has been turned on since the last reset. This property is resettable.

Characteristic: Count 24

2.8.13 Light Source Temperature property

This property represents the light source temperature.

Characteristic: High Temperature

2.8.14 Light Source Thermal Derating Statistics property

This property represents a count of the total number of thermal derating events in the light source, the average duration of the events, the time elapsed since the last thermal derating failure event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.8.15 Light Source Thermal Shutdown Statistics property

This property represents a count of the total number of light source thermal shutdown events in light source, the average duration of the events, the time elapsed since the last thermal shutdown event of the light source, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.8.16 Light Source Total Power On Cycles property

This property represents the number of times the light source has been turned on since manufacturing. This property is not resettable. It is useful for predictive maintenance.

Characteristic: Count 24

2.8.17 Light Source Type property

This property specifies means by which a luminaire generates light and is an enumeration. The defined values include low pressure fluorescent, HID, low voltage halogen, incandescent, LED, and OLED. Special values are defined to indicate the light source type has not been specified, is other than any of the defined types, is not installed, or multiple light sources are installed.

Characteristic: Light Source Type

2.8.18 Light Source Voltage property

This property represents the voltage needed to be provided to use the light source with a constant current driver.

Characteristic: Average Voltage

2.8.19 Luminous Efficacy property

This property represents the present luminous efficacy of a light source or a lighting fixture. The luminous efficacy is the luminous flux produced by the device divided by its electrical input. Luminous efficacy typically is dependent on drive conditions, and the value reported represents the efficacy at present drive conditions.

Characteristic: Luminous Efficacy

2.8.20 Luminous Energy Since Turn On property

This property represents the luminous energy produced by a light source or a lighting fixture since it was turned on.

Characteristic: Luminous Energy

2.8.21 Nominal Light Output property

This property represents the nominal light output of the light source.

Characteristic: Light Output

2.8.22 Relative Runtime in a Correlated Color Temperature Range property

This property represents a relative runtime of a device in a correlated color temperature range. The Relative Runtime is the relative value, that is, the runtime in the interval compared to the total runtime recorded by the device. See the Total Device Runtime property in Section 2.14.8. The Minimum Correlated Color Temperature and Maximum Correlated Color Temperature define the correlated color temperature range as minimum and maximum values of a range.

Example use case: To see if the device powered by the supply has been operating within the specified correlated color temperature boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Relative Runtime in a Correlated Color Temperature Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Correlated Color Temperature
Width	Maximum Correlated Color Temperature - Minimum Correlated Color Temperature
Value	Relative Runtime

Table 2.8: Mapping from property fields to characteristic fields

2.8.23 Total Luminous Energy property

This property represents the total recorded luminous energy produced by a light source or a lighting fixture.

Characteristic: Luminous Energy

2.9 Luminaire property group

This category contains the property definitions related to luminaires.

2.9.1 Luminaire Color property

This property represents the luminaire color description. This property is mapped to the luminaire color field in memory bank 1, which is defined by the DiiA specification “DALI Part 251 – Memory Bank 1 Extension” [8].

Characteristic: Fixed String 24

2.9.2 Luminaire Identification Number property

This property represents the luminaire identification number.

Characteristic: Fixed String 24

2.9.3 Luminaire Identification String property

This property represents the luminaire identification string.

Characteristic: Fixed String 64

2.9.4 Luminaire Manufacturer GTIN property

This property represents the luminaire manufacturer Global Trade Item Number (GTIN).

Characteristic: Global Trade Item Number

2.9.5 Luminaire Nominal Input Power property

This property represents the luminaire nominal input power.

Characteristic: Power

2.9.6 Luminaire Nominal Maximum AC Mains Voltage property

This property represents the luminaire nominal maximum AC mains voltage.

Characteristic: Voltage

2.9.7 Luminaire Nominal Minimum AC Mains Voltage property

This property represents the luminaire nominal minimum AC mains voltage.

Characteristic: Voltage

2.9.8 Luminaire Power at Minimum Dim Level property

This property represents the luminaire power at minimum dimming level.

Characteristic: Power

2.9.9 Luminaire Time of Manufacture property

This property represents the luminaire time of manufacture.

Characteristic: Date UTC

2.9.10 Rated Median Useful Life of Luminaire property

This property represents the luminaire rated median useful life. It is useful to find out how long the light source in the luminaire is designed to work.

Characteristic: Time Hour 24

2.9.11 Rated Median Useful Light Source Starts property

This property represents the light source median useful time. The parameter represents the rated median useful lifetime of the luminaire (including light source and other components).

Characteristic: Count 24

2.10 Occupancy property group

This category contains the property definitions related to occupancy of spaces. The occupancy properties are related to people, but also to cars (in parking garages), animals (on farms), and units within a building (e.g., rental units or hotel rooms).

2.10.1 HVAC Occupancy Minimum Run Time property

This property represents the lowest time setting that occupancy-aware heating, ventilation, and air conditioning (HVAC) equipment stays in active mode after being triggered by an occupancy event.

Characteristic: Time Second 16

2.10.2 HVAC Occupancy Threshold Time property

This property represents the minimum period of time during which occupancy events must be present in order to trigger the equipment into active mode in occupancy-aware heating, ventilation, and air conditioning (HVAC) equipment.

Characteristic: Time Second 16

2.10.3 HVAC Vacancy Threshold Time property

The HVAC Vacancy Threshold Time property represents the minimum inactivity duration. Inactivity duration is a continuous period of time during which no occupancy events occur. Any inactivity duration that is shorter than the HVAC Vacancy Threshold Time does not trigger occupancy-aware HVAC equipment to change to inactive mode.

Characteristic: Time Second 16

2.10.4 Motion Sensed property

This property represents the activity level, as, for example, detected by a motion sensor. Typically, this is detected by a Passive Infrared (PIR) sensor. The motion activity is represented by a relative value ranging from 0 percent to 100 percent, with 100 percent the maximum activity that the sensor can record.

Characteristic: Percentage 8

2.10.5 Motion Threshold property

This property represents the activity level, for example, as detected by a motion or an occupancy sensor, below which motion or occupancy is not reported. For instance, a Passive Infrared (PIR) sensor does not report presence when the level of activity observed by the sensor is below this value.

Increasing the value of the Motion Threshold decreases the sensitivity of the sensor and decreasing the value of the Motion Threshold increases the sensitivity of the sensor. Setting the Motion Threshold to 0 percent results in the sensor operating at maximum sensitivity. Setting the Motion Threshold to 100 percent results in the sensor operating at minimum sensitivity.

Characteristic: Percentage 8

2.10.6 Motion Threshold Steps property

This property represents the number of steps available when configuring the Motion Threshold property (see Section 2.10.5).

Occupancy sensors may have user-configurable sensitivity, represented by the Motion Threshold property. Some sensors may only allow a discrete number of sensitivity steps between 0% and 100%. This property is intended to be defined by device manufacturers and represents the number of steps available when configuring the Motion Threshold property.

For example:

- A value of 1 represents one step available for the configuration of the Motion Threshold: 0% to 100% in one 100% step.
- A value of 5 represents five steps available for the configuration of the Motion Threshold: 0% to 100% in five 20% steps.
- A value of 200 represents 200 steps available for the configuration of the Motion Threshold: 0% to 100% in 200 0.5% steps.

Characteristic: Percentage 8 Steps

2.10.7 People Count property

This property represents the number of people present in a space or in a building. This property could be measured by counting the number of people entering and leaving a space, or by using a camera.

Characteristic: Count 16

2.10.8 Presence Detected property

This property represents whether or not an occupant is detected within range of the occupancy detector.

Characteristic: Boolean

2.10.9 Time Since Motion Sensed property

This property represents the time that has elapsed since the sensor last detected any activity.

Example use case: To achieve simultaneous reaction of a group of lights in response to a series of repeated messages sent by a motion sensor (see Section 6.5.1.7.1, Receiving a Sensor Status message in [1]).

Characteristic: Time Millisecond 24

2.10.10 Time Since Presence Detected property

This property represents the time that has elapsed since the sensor last detected presence.

Example use case: To turn off lights in the absence of any activity in a space.

Characteristic: Time Second 16

2.11 Photometry property group

This category contains the property definitions related to photometrics. These typically are measured with photodetectors.

2.11.1 Coarse Present Ambient Light Level property

This property represents the light captured by a sensor measuring illuminance (Lux).

Characteristic: Illuminance 16

2.11.2 Initial CIE 1931 Chromaticity Coordinates property

This property represents the initial chromaticity coordinates x and y of a device using CIE 1931 [6] Cx and Cy chromaticity coordinates at first use of the device. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model. The property value typically is configured by the manufacturer of the device.

Characteristic: Chromaticity Coordinates

2.11.3 Initial Correlated Color Temperature property

This property represents the initial correlated color temperature associated with a device such as a color-tunable light. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model. This property typically is configured by the manufacturer of the device.

Characteristic: Correlated Color Temperature

2.11.4 Initial Luminous Flux property

This property represents the maximum luminous output flux capability of a device at time of first use of the device. This value is typically configured by the manufacturer of the device.

Characteristic: Luminous Flux

2.11.5 Initial Planckian Distance property

This property represents the distance of a chromaticity coordinate from the Planckian locus on the (u', 2/3v') diagram as defined by ANSI standard C78.377-2008 [7] at first use of the device. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device that is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model. This property is typically configured by the manufacturer of the device.

Characteristic: Chromatic Distance from Planckian

2.11.6 Lumen Maintenance Factor property

This property represents the maximum luminous flux capability of a lamp or lighting fixture relative to the initial maximum luminous flux capability. This value could be measured using an integrated sensor of a device or could be calculated based on its operational runtime and other operating history parameters based on a mathematical model.

Characteristic: Percentage 8

2.11.7 Luminous Exposure property

This property represents the total recorded luminous exposure as measured by a lux meter. This property can be used to monitor luminous exposure of an illuminated work of art and adjust light levels or to take the art piece out of the exhibition when the exposure is too high.

Characteristic: Luminous Exposure

2.11.8 Luminous Flux Range property

This property represents the luminous flux range of a device as specified by the manufacturer of a light source or a lighting fixture. Minimum Luminous Flux represents the start of the range and Maximum Luminous Flux represents the end of the range.

Characteristic: Luminous Flux Range

2.11.9 Present Ambient Light Level property

This property represents the light level as measured by a light sensor measuring illuminance (Lux).

Characteristic: Illuminance

2.11.10 Present CIE 1931 Chromaticity Coordinates property

This property represents the chromaticity coordinates x and y of a device using CIE 1931 [6] Cx and Cy chromaticity coordinates. The value typically is measured by a spectrometer or a chroma meter, but it can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model.

Characteristic: Chromaticity Coordinates

2.11.11 Present Correlated Color Temperature property

This property represents the present correlated color temperature associated with a device such as a color tunable light. The value typically is measured by a spectrometer or a chroma meter, but it can also be reported by a device that is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model.

Characteristic: Correlated Color Temperature

2.11.12 Present Illuminance property

This property represents the illuminance as measured by a lux meter.

Characteristic: Illuminance

2.11.13 Present Luminous Flux property

This property represents the luminous flux as output by a device.

Characteristic: Luminous Flux

2.11.14 Present Planckian Distance property

This property represents the present distance of a chromaticity coordinate from the Planckian locus on the (u', 2/3v') diagram as defined by ANSI standard C78.377-2008 [7]. The value typically is measured by a spectrometer or a chroma meter, but also can be reported by a device that is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model.

Characteristic: Chromatic Distance from Planckian

2.11.15 Relative Exposure Time in an Illuminance Range property

This property represents a relative exposure time of a light sensor (typically a photodetector) in an illuminance range.

The Relative Value field is the relative exposure time, that is, the exposure time within the illuminance interval compared with the total exposure time recorded by the sensor. See the Total Light Exposure Time property in Section 2.11.16.

The Minimum Illuminance and Maximum Illuminance define the illuminance range.

Example use case: To adjust light levels or reduce the hours of display for a particular piece of art in a museum.

Characteristic: Relative Value in an Illuminance Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Illuminance
Width	Maximum Illuminance - Minimum Illuminance
Value	Relative Value

Table 2.9: Mapping from property fields to characteristic fields

2.11.16 Total Light Exposure Time property

This property represents the total recorded sensing duration of a light sensor (typically a photodetector).

Characteristic: Time Hour 24

2.12 Power Supply Output property group

This section contains the property definitions related to the electrical output of a power supply, also known as an LED driver, such as output voltage, output ripple voltage, and output current. These properties can be used to monitor the driver operating conditions and electrical operating history for light sources connected to the driver, such as LED arrays.

2.12.1 Average Output Current property

This property represents the average output current for the device. This property consists of two fields: the Electric Current Value field is the average of a series of output current values, and the Sensing Duration field is the period over which the series of output current values were measured.

Characteristic: Average Current

2.12.2 Average Output Voltage property

This property represents the average output voltage for the device. This property consists of two fields: the Voltage Value field is the average of a series of output voltage values, and the Sensing Duration field is the period over which the series of output voltage values were measured.

Characteristic: Average Voltage

2.12.3 External Supply Voltage property

This property represents the external supply voltage.

Characteristic: High Voltage

2.12.4 External Supply Voltage Frequency property

This property represents the external supply voltage frequency.

Characteristic: Voltage Frequency

2.12.5 Open Circuit Event Statistics property

This property represents the open circuit event statistics and is composed of four fields. The Number of Events field represents the count of open circuit events. The Average Event Duration field represents the average duration of all the open circuit events in the data-recording period. The Time Elapsed Since Last Event field represents the time elapsed since the last open circuit event occurred. The Sensing Duration field represents the total data-recording period.

Characteristic: Event Statistics

2.12.6 Output Current Percent property

This property represents the output current of a luminaire power supply related to the nominal output current. It includes the luminaire dim level and all internal reductions of the output current except the reduction by constant lumen functionality.

Example use case: To provide predictive maintenance services.

Characteristic: Percentage 8

2.12.7 Output Current Range property

This property represents an output current range of a device and consists of two fields: the Minimum Electric Current field represents the minimum output current for a device, and the Maximum Electric Current field represents the maximum output current for a device.

Characteristic: Electric Current Range

2.12.8 Output Current Statistics property

This property represents a set of statistical values for the output current of a device. It consists of five fields. The Average Electric Current Value field represents the average current of a series of measured current values over a period of time. The Standard Deviation Electric Current Value field represents the standard deviation of a series of measured current values over a period of time. The Minimum Electric Current Value field represents the minimum of a series of measured current values over a period of time. The Maximum Electric Current Value field represents the maximum of a series of measured current values over a period of time. The Sensing Duration field represents the total data-recording period.

Characteristic: Electric Current Statistics

2.12.9 Output Power Limitation property

Output power limitation is a condition when a power supply device limits the output current due to its internal power limitation. This property represents a count of the total number of output power limitation events, the average duration of the events, the time elapsed since the last event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.12.10 Output Ripple Voltage Specification property

This property represents the maximum allowed relative ripple voltage for the device. The relative ripple voltage is the ripple value divided by the average output voltage. See the Average Output Voltage property in Section 2.12.2.

Characteristic: Percentage 8

2.12.11 Output Voltage Range property

This property represents the minimum and maximum output voltage of the power supply.

Characteristic: Voltage Specification

2.12.12 Output Voltage Statistics property

This property represents a set of statistical values for the output voltage of a device. It consists of five fields. The Average Voltage Value field represents the average voltage of a series of measured voltage values over a period of time. The Standard Deviation Voltage Value field represents the standard deviation of a series of measured voltage values over a period of time. The Minimum Electric voltage Value field represents the minimum of a series of measured voltage values over a period of time. The Maximum Electric voltage Value represents the maximum of a series of measured voltage values over a period of time. The Sensing Duration field represents the total data-recording period.

Characteristic: Voltage Statistics

2.12.13 Over Output Ripple Voltage Event Statistics property

This property represents the over output ripple voltage event statistics and is composed of four values. The Number of Events field represents the count of over output ripple voltage events. The Average Event Duration field represents the average duration of all the over output ripple voltage events in the data recording period. The Time Elapsed Since Last Event field represents the time elapsed since the last over output ripple voltage event occurred. The Sensing Duration field represents the total data-recording period.

Characteristic: Event Statistics

2.12.14 Present Output Current property

This property represents the present output current for the device.

Characteristic: Electric Current

2.12.15 Present Output Voltage property

This property represents the present output voltage of the power supply.

Characteristic: Voltage

2.12.16 Present Relative Output Ripple Voltage property

This property represents the relative ripple voltage value. The relative ripple voltage is the ripple voltage value divided by the average voltage (as reported by the Average Output Voltage property in Section 2.12.2). These values could be used to monitor the performance of power supplies because an increase in the ripple voltage value could indicate that the capacitors in these power supplies are starting to fail.

Example use case: To indicate an early sign of a power supply failure.

Characteristic: Percentage 8

2.12.17 Reference Temperature property

This property represents the internal reference temperature of a luminaire. The value is specified by the luminaire manufacturer based on measurements at tq = 25°C, at rated luminaire power (at 100% dimming level).

Characteristic: High Temperature

2.12.18 Short Circuit Event Statistics property

This property represents the short circuit event statistics and is composed of four values. The Number of Events field represents the count of short circuit events. The Average Event Duration field represents the average duration of all the short circuit events in the data-recording period. The Time Elapsed Since Last Event field represents the time elapsed since the last short circuit event occurred. The Sensing Duration field represents the total data-recording period.

Characteristic: Event Statistics

2.12.19 Thermal Derating property

Thermal derating is a condition when the temperature of a device exceeds a threshold defined by the manufacturer. This property represents a count of the total number of thermal derating events, the average duration of the events, the time elapsed since the last event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.13 Settings property group

This category contains the property definitions related to the various device settings.

2.13.1 Sensor Gain property

This property represents the ratio of the value reported by the sensor to the raw value measured by the sensor.

Example use case: To calibrate reported values using a multiplier acting as an attenuator or amplifier. A negative Sensor Gain value is used when the sensor reports values in reverse to the measured values.

Characteristic: Coefficient

2.13.2 Subsensor Weights 2 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 2 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 3 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8

Table 2.10: Mapping from property fields to characteristic fields

2.13.3 Subsensor Weights 3 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 3 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 4 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

The Steps field represents the number of steps available when configuring the Weight N fields.

Each Weight N field represents a weight used by the sensor when calculating the weighted output value. Weights do not need to add up to 100%.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8

Table 2.11: Mapping from property fields to characteristic fields

2.13.4 Subsensor Weights 4 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 4 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 5 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8
Weight 4	Percentage 8

Table 2.12: Mapping from property fields to characteristic fields

2.13.5 Subsensor Weights 5 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 5 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 6 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8

Property Field	Characteristic Field Mapping
Weight 4	Percentage 8
Weight 5	Percentage 8

Table 2.13: Mapping from property fields to characteristic fields

2.13.6 Subsensor Weights 6 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 6 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 7 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8
Weight 4	Percentage 8
Weight 5	Percentage 8
Weight 6	Percentage 8

Table 2.14: Mapping from property fields to characteristic fields

2.13.7 Subsensor Weights 7 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 7 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 8 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8

Property Field	Characteristic Field Mapping
Weight 4	Percentage 8
Weight 5	Percentage 8
Weight 6	Percentage 8
Weight 7	Percentage 8

Table 2.15: Mapping from property fields to characteristic fields

2.13.8 Subsensor Weights 8 property

This property represents the weights applied to measured values reported by individual sensor probes in a sensor that consists of 8 probes to reflect their relative importance to the overall result.

Characteristics: Percentage 8 Steps

Percentage 8

This property has 9 fields, each of which derives its value from the characteristic. These fields are shown in the following table.

Property Field	Characteristic Field Mapping
Steps	Percentage 8 Steps
Weight 1	Percentage 8
Weight 2	Percentage 8
Weight 3	Percentage 8
Weight 4	Percentage 8
Weight 5	Percentage 8
Weight 6	Percentage 8
Weight 7	Percentage 8
Weight 8	Percentage 8

Table 2.16: Mapping from property fields to characteristic fields

2.14 Warranty and Service property group

This category contains the property definitions related to warranty and service of a device, for example, the total runtime of a device and the warranty runtime as provided by the manufacturer.

The device properties in this category can be used to check whether or not the device is still covered by a runtime warranty and to track aspects of device usage for a runtime warranty.

2.14.1 Device Runtime Since Turn On property

This property represents the total time the element has been operating in the On-state since it was turned on the last time. A value of 0 represents that the run time is not known.

Characteristic: Time Hour 24

2.14.2 Device Runtime Warranty property

This property represents the total operating time covered by the warranty.

Characteristic: Time Hour 24

2.14.3 Overall Failure Condition property

This property represents a count of the total number of device failure events, the average duration of the events, the time elapsed since the last event, and the total data recording period.

Example use case: To provide predictive maintenance services.

Characteristic: Event Statistics

2.14.4 Relative Device Runtime in a Generic Level Range property

This property represents a relative runtime of a device within a generic level range.

The Relative Value field is the relative runtime, that is, the runtime within the interval compared with the total runtime recorded by the device. See the Total Device Runtime property in Section 2.14.8.

The Minimum Generic Level and Maximum Generic Level define the generic level range.

Characteristic: Relative Runtime in a Generic Level Range

This property has three fields, each of which derives its value from the characteristic. These fields are shown in the table below.

Property Field	Characteristic Field Mapping
Start	Minimum Generic Level
Width	Maximum Generic Level - Minimum Generic Level
Value	Relative Value

Table 2.17: Mapping from property fields to characteristic fields

2.14.5 Total Device Off On Cycles property

This property represents the total recorded count of transitions from an Off-state to an On-state for a device.

Characteristic: Count 24

2.14.6 Total Device Power On Cycles property

This property represents the total recorded power-on event count for a device.

Characteristic: Count 24

2.14.7 Total Device Power On Time property

This property represents the total of the recorded duration the device has been powered on. A value of 0 represents that this time is not known.

Characteristic: Time Hour 24

2.14.8 Total Device Runtime property

This property represents the total time that the element has been operating (has been in an On-state).

Characteristic: Time Hour 24

2.14.9 Total Device Starts property

This property is a counter that represents the number of device starts since the first start.

Example use case: To provide predictive maintenance services.

Characteristic: Count 24

3 Property summary

3.1 Properties by name

Property	Characteristic	Property ID
Active Energy Loadside	Energy 32	0x0080
Active Power Loadside	Power	0x0081
Air Pressure	Pressure	0x0082
Apparent Energy	Apparent Energy 32	0x0083
Apparent Power	Apparent Power	0x0084
Apparent Wind Direction	Apparent Wind Direction	0x0085
Apparent Wind Speed	Apparent Wind Speed	0x0086
Average Ambient Temperature in a Period of Day	Temperature 8 in a Period of Day	0x0001
Average Input Current	Average Current	0x0002
Average Input Voltage	Average Voltage	0x0003
Average Output Current	Average Current	0x0004
Average Output Voltage	Average Voltage	0x0005
Building Floor	Floor Number	0x00B9
Center Beam Intensity at Full Power	Luminous Intensity	0x0006
Chromaticity Tolerance	Chromaticity Tolerance	0x0007
Coarse Ambient Relative Humidity	Humidity 8	0x00BE
Coarse Present Ambient Light Level	Illuminance 16	0x00BF
Color Rendering Index R9	CIE 13.3-1995 Color Rendering Index	0x0008
Color Rendering Index Ra	CIE 13.3-1995 Color Rendering Index	0x0009
Desired Ambient Temperature	Temperature 8	0x0071
Device Appearance	Appearance	0x000A
Device Country of Origin	Country Code	0x000B
Device Date of Manufacture	Date UTC	0x000C
Device Energy Use Since Turn On	Energy	0x000D
Device Firmware Revision	Fixed String 8	0x000E
Device Global Trade Item Number	Global Trade Item Number	0x000F
Device Hardware Revision	Fixed String 16	0x0010
Device Manufacturer Name	Fixed String 36	0x0011
Device Model Number	Fixed String 24	0x0012
Device Operating Temperature Range Specification	Temperature Range	0x0013
Device Operating Temperature Statistical Values	Temperature Statistics	0x0014

Property	Characteristic	Property ID
Device Over Temperature Event Statistics	Event Statistics	0x0015
Device Power Range Specification	Power Specification	0x0016
Device Runtime Since Turn On	Time Hour 24	0x0017
Device Runtime Warranty	Time Hour 24	0x0018
Device Serial Number	Fixed String 16	0x0019
Device Software Revision	Fixed String 8	0x001A
Device Under Temperature Event Statistics	Event Statistics	0x001B
Dew Point	Dew Point	0x0087
External Supply Voltage	High Voltage	0x0088
External Supply Voltage Frequency	Voltage Frequency	0x0089
Gust Factor	Gust Factor	0x008A
Heat Index	Heat Index	0x008B
HVAC Occupancy Minimum Run Time	Time Second 16	0x00C0
HVAC Occupancy Threshold Time	Time Second 16	0x00C1
HVAC Vacancy Threshold Time	Time Second 16	0x00CB
Indoor Ambient Temperature Statistical Values	Temperature 8 Statistics	0x001C
Initial CIE 1931 Chromaticity Coordinates	Chromaticity Coordinates	0x001D
Initial Correlated Color Temperature	Correlated Color Temperature	0x001E
Initial Luminous Flux	Luminous Flux	0x001F
Initial Planckian Distance	Chromatic Distance from Planckian	0x0020
Input Current Range Specification	Electric Current Specification	0x0021
Input Current Statistics	Electric Current Statistics	0x0022
Input Over Current Event Statistics	Event Statistics	0x0023
Input Over Ripple Voltage Event Statistics	Event Statistics	0x0024
Input Over Voltage Event Statistics	Event Statistics	0x0025
Input Under Current Event Statistics	Event Statistics	0x0026
Input Under Voltage Event Statistics	Event Statistics	0x0027
Input Voltage Range Specification	Voltage Specification	0x0028
Input Voltage Ripple Specification	Percentage 8	0x0029
Input Voltage Statistics	Voltage Statistics	0x002A
Light Control Ambient LuxLevel On	Illuminance	0x002B
Light Control Ambient LuxLevel Prolong	Illuminance	0x002C
Light Control Ambient LuxLevel Standby	Illuminance	0x002D
Light Control Lightness On	Perceived Lightness	0x002E
Light Control Lightness Prolong	Perceived Lightness	0x002F

Property	Characteristic	Property ID
Light Control Lightness Standby	Perceived Lightness	0x0030
Light Control Regulator Accuracy	Percentage 8	0x0031
Light Control Regulator Kid	Coefficient	0x0032
Light Control Regulator Kiu	Coefficient	0x0033
Light Control Regulator Kpd	Coefficient	0x0034
Light Control Regulator Kpu	Coefficient	0x0035
Light Control Time Fade	Time Millisecond 24	0x0036
Light Control Time Fade On	Time Millisecond 24	0x0037
Light Control Time Fade Standby Auto	Time Millisecond 24	0x0038
Light Control Time Fade Standby Manual	Time Millisecond 24	0x0039
Light Control Time Occupancy Delay	Time Millisecond 24	0x003A
Light Control Time Prolong	Time Millisecond 24	0x003B
Light Control Time Run On	Time Millisecond 24	0x003C
Light Distribution	Light Distribution	0x008C
Light Source Current	Average Current	0x008D
Light Source On Time Not Resettable	Time Second 32	0x008E
Light Source On Time Resettable	Time Second 32	0x008F
Light Source Open Circuit Statistics	Event Statistics	0x0090
Light Source Overall Failures Statistics	Event Statistics	0x0091
Light Source Short Circuit Statistics	Event Statistics	0x0092
Light Source Start Counter Resettable	Count 24	0x0093
Light Source Temperature	High Temperature	0x0094
Light Source Thermal Derating Statistics	Event Statistics	0x0095
Light Source Thermal Shutdown Statistics	Event Statistics	0x0096
Light Source Total Power On Cycles	Count 24	0x0097
Light Source Type	Light Source Type	0x00B3
Light Source Voltage	Average Voltage	0x0098
Local Asset Identifier	Fixed String 36	0x00BA
Local Asset Name	Fixed String 36	0x00BB
Lumen Maintenance Factor	Percentage 8	0x003D
Luminaire Color	Fixed String 24	0x0099
Luminaire Identification Number	Fixed String 24	0x009A
Luminaire Identification String	Fixed String 64	0x00B4
Luminaire Manufacturer GTIN	Global Trade Item Number	0x009B
Luminaire Nominal Input Power	Power	0x009C

Property	Characteristic	Property ID
Luminaire Nominal Maximum AC Mains Voltage	Voltage	0x009D
Luminaire Nominal Minimum AC Mains Voltage	Voltage	0x009E
Luminaire Power at Minimum Dim Level	Power	0x009F
Luminaire Time of Manufacture	Date UTC	0x00A0
Luminous Efficacy	Luminous Efficacy	0x003E
Luminous Energy Since Turn On	Luminous Energy	0x003F
Luminous Exposure	Luminous Exposure	0x0040
Luminous Flux Range	Luminous Flux Range	0x0041
Magnetic Declination	Magnetic Declination	0x00A1
Magnetic Flux Density - 2D	Magnetic Flux Density - 2D	0x00A2
Magnetic Flux Density - 3D	Magnetic Flux Density - 3D	0x00A3
Motion Sensed	Percentage 8	0x0042
Motion Threshold	Percentage 8	0x0043
Motion Threshold Steps	Percentage 8 Steps	0x00B8
Nominal Light Output	Light Output	0x00A4
Open Circuit Event Statistics	Event Statistics	0x0044
Outdoor Statistical Values	Temperature 8 Statistics	0x0045
Output Current Percent	Percentage 8	0x00B7
Output Current Range	Electric Current Range	0x0046
Output Current Statistics	Electric Current Statistics	0x0047
Output Power Limitation	Event Statistics	0x00B5
Output Ripple Voltage Specification	Percentage 8	0x0048
Output Voltage Range	Voltage Specification	0x0049
Output Voltage Statistics	Voltage Statistics	0x004A
Over Output Ripple Voltage Event Statistics	Event Statistics	0x004B
Overall Failure Condition	Event Statistics	0x00A5
People Count	Count 16	0x004C
Pollen Concentration	Pollen Concentration	0x00A6
Power Factor	Cosine of the Angle	0x0073
Precise Present Ambient Temperature	Temperature	0x0075
Precise Total Device Energy Use	Energy 32	0x0072
Presence Detected	Boolean	0x004D
Present Ambient Carbon Dioxide Concentration	CO_2 Concentration	0x0077
Present Ambient Light Level	Illuminance	0x004E
Present Ambient Noise	Noise	0x0079

Property	Characteristic	Property ID
Present Ambient Relative Humidity	Humidity	0x0076
Present Ambient Temperature	Temperature 8	0x004F
Present Ambient Volatile Organic Compounds Concentration	VOC Concentration	0x0078
Present CIE 1931 Chromaticity Coordinates	Chromaticity Coordinates	0x0050
Present Correlated Color Temperature	Correlated Color Temperature	0x0051
Present Device Input Power	Power	0x0052
Present Device Operating Efficiency	Percentage 8	0x0053
Present Device Operating Temperature	Temperature	0x0054
Present Illuminance	Illuminance	0x0055
Present Indoor Ambient Temperature	Temperature 8	0x0056
Present Indoor Relative Humidity	Humidity	0x00A7
Present Input Current	Electric Current	0x0057
Present Input Ripple Voltage	Percentage 8	0x0058
Present Input Voltage	Voltage	0x0059
Present Luminous Flux	Luminous Flux	0x005A
Present Outdoor Ambient Temperature	Temperature 8	0x005B
Present Outdoor Relative Humidity	Humidity	0x00A8
Present Output Current	Electric Current	0x005C
Present Output Voltage	Voltage	0x005D
Present Planckian Distance	Chromatic Distance from Planckian	0x005E
Present Relative Output Ripple Voltage	Percentage 8	0x005F
Pressure	Pressure	0x00A9
Rainfall	Rainfall	0x00AA
Rated Median Useful Life of Luminaire	Time Hour 24	0x00AB
Rated Median Useful Light Source Starts	Count 24	0x00AC
Reference Temperature	High Temperature	0x00AD
Relative Device Energy Use in a Period of Day	Energy in a Period of Day	0x0060
Relative Device Runtime in a Generic Level Range	Relative Runtime in a Generic Level Range	0x0061
Relative Exposure Time in an Illuminance Range	Relative Value in an Illuminance Range	0x0062
Relative Runtime in a Correlated Color Temperature Range	Relative Runtime in a Correlated Color Temperature Range	0x0063
Relative Runtime in a Device Operating Temperature Range	Relative Value in a Temperature Range	0x0064
Relative Runtime in an Input Current Range	Relative Runtime in a Current Range	0x0065

Property	Characteristic	Property ID
Relative Runtime in an Input Voltage Range	Relative Value in a Voltage Range	0x0066
Sensor Gain	Coefficient	0x0074
Short Circuit Event Statistics	Event Statistics	0x0067
Spatial Unit Category	Fixed String 36	0x00BC
Spatial Unit Name	Fixed String 36	0x00BD
Thermal Derating	Event Statistics	0x00B6
Time Since Motion Sensed	Time Millisecond 24	0x0068
Time Since Presence Detected	Time Second 16	0x0069
Total Device Energy Use	Energy	0x006A
Total Device Off On Cycles	Count 24	0x006B
Total Device Power On Cycles	Count 24	0x006C
Total Device Power On Time	Time Hour 24	0x006D
Total Device Runtime	Time Hour 24	0x006E
Total Device Starts	Count 24	0x00AE
Total Light Exposure Time	Time Hour 24	0x006F
Total Luminous Energy	Luminous Energy	0x0070
True Wind Direction	True Wind Direction	0x00AF
True Wind Speed	True Wind Speed	0x00B0
UV Index	UV Index	0x00B1
Wind Chill	Wind Chill	0x00B2

Table 3.1: Properties by name

3.2 Properties by characteristic

Characteristic	Property
Apparent Energy 32	Apparent Energy
Apparent Power	Apparent Power
Apparent Wind Direction	Apparent Wind Direction
Apparent Wind Speed	Apparent Wind Speed
Appearance	Device Appearance
Average Current	Average Input Current Average Output Current Light Source Current
Average Voltage	Average Input Voltage Average Output Voltage Light Source Voltage
Boolean	Presence Detected

Characteristic	Property
Chromatic Distance from Planckian	Initial Planckian Distance Present Planckian Distance
Chromaticity Coordinates	Initial CIE 1931 Chromaticity Coordinates Present CIE 1931 Chromaticity Coordinates
Chromaticity Tolerance	Chromaticity Tolerance
CIE 13.3-1995 Color Rendering Index	Color Rendering Index R9 Color Rendering Index Ra
CO_2 Concentration	Present Ambient Carbon Dioxide Concentration
Coefficient	Light Control Regulator Kid Light Control Regulator Kiu Light Control Regulator Kpd Light Control Regulator Kpu Sensor Gain
Correlated Color Temperature	Initial Correlated Color Temperature Present Correlated Color Temperature
Cosine of the Angle	Power Factor
Count 16	People Count
Count 24	Light Source Start Counter Resettable Light Source Total Power On Cycles Rated Median Useful Light Source Starts Total Device Off On Cycles Total Device Power On Cycles Total Device Starts
Country Code	Device Country of Origin
Date UTC	Device Date of Manufacture Luminaire Time of Manufacture
Dew Point	Dew Point
Electric Current	Present Input Current Present Output Current
Electric Current Range	Output Current Range
Electric Current Specification	Input Current Range Specification
Electric Current Statistics	Input Current Statistics Output Current Statistics
Energy	Device Energy Use Since Turn On Total Device Energy Use
Energy 32	Active Energy Loadside Precise Total Device Energy Use
Energy in a Period of Day	Relative Device Energy Use in a Period of Day

Characteristic	Property
Event Statistics	Device Over Temperature Event Statistics Device Under Temperature Event Statistics Input Over Current Event Statistics Input Over Ripple Voltage Event Statistics Input Over Voltage Event Statistics Input Under Current Event Statistics Input Under Voltage Event Statistics Light Source Open Circuit Statistics Light Source Overall Failures Statistics Light Source Short Circuit Statistics Light Source Thermal Derating Statistics Light Source Thermal Shutdown Statistics Open Circuit Event Statistics Output Power Limitation Over Output Ripple Voltage Event Statistics Overall Failure Condition Short Circuit Event Statistics Thermal Derating
Fixed String 8	Device Firmware Revision Device Software Revision
Fixed String 16	Device Hardware Revision Device Serial Number
Fixed String 24	Device Model Number Luminaire Color Luminaire Identification Number
Fixed String 36	Device Manufacturer Name Local Asset Identifier Local Asset Name Spatial Unit Category Spatial Unit Name
Fixed String 64	Luminaire Identification String
Floor Number	Building Floor
Global Trade Item Number	Device Global Trade Item Number Luminaire Manufacturer GTIN
Gust Factor	Gust Factor
Heat Index	Heat Index
High Temperature	Light Source Temperature Reference Temperature
High Voltage	External Supply Voltage
Humidity	Present Ambient Relative Humidity Present Indoor Relative Humidity Present Outdoor Relative Humidity
Humidity 8	Coarse Ambient Relative Humidity

Characteristic	Property
Illuminance	Light Control Ambient LuxLevel On Light Control Ambient LuxLevel Prolong Light Control Ambient LuxLevel Standby Present Ambient Light Level Present Illuminance
Illuminance 16	Coarse Present Ambient Light Level
Light Distribution	Light Distribution
Light Output	Nominal Light Output
Light Source Type	Light Source Type
Luminous Efficacy	Luminous Efficacy
Luminous Energy	Luminous Energy Since Turn On Total Luminous Energy
Luminous Exposure	Luminous Exposure
Luminous Flux	Initial Luminous Flux Present Luminous Flux
Luminous Flux Range	Luminous Flux Range
Luminous Intensity	Center Beam Intensity at Full Power
Magnetic Declination	Magnetic Declination
Magnetic Flux Density - 2D	Magnetic Flux Density - 2D
Magnetic Flux Density - 3D	Magnetic Flux Density - 3D
Noise	Present Ambient Noise
Perceived Lightness	Light Control Lightness On Light Control Lightness Prolong Light Control Lightness Standby
Percentage 8	Input Voltage Ripple Specification Light Control Regulator Accuracy Lumen Maintenance Factor Motion Sensed Motion Threshold Output Current Percent Output Ripple Voltage Specification Present Device Operating Efficiency Present Input Ripple Voltage Present Relative Output Ripple Voltage
Percentage 8 Steps	Motion Threshold Steps
Pollen Concentration	Pollen Concentration
Power	Active Power Loadside Luminaire Nominal Input Power Luminaire Power at Minimum Dim Level Present Device Input Power
Power Specification	Device Power Range Specification

Characteristic	Property
Pressure	Air Pressure Pressure
Rainfall	Rainfall
Relative Runtime in a Correlated Color Temperature Range	Relative Runtime in a Correlated Color Temperature Range
Relative Runtime in a Current Range	Relative Runtime in an Input Current Range
Relative Runtime in a Generic Level Range	Relative Device Runtime in a Generic Level Range
Relative Value in a Temperature Range	Relative Runtime in a Device Operating Temperature Range
Relative Value in a Voltage Range	Relative Runtime in an Input Voltage Range
Relative Value in an Illuminance Range	Relative Exposure Time in an Illuminance Range
Temperature	Precise Present Ambient Temperature Present Device Operating Temperature
Temperature 8	Desired Ambient Temperature Present Ambient Temperature Present Indoor Ambient Temperature Present Outdoor Ambient Temperature
Temperature 8 in a Period of Day	Average Ambient Temperature in a Period of Day
Temperature 8 Statistics	Indoor Ambient Temperature Statistical Values Outdoor Statistical Values
Temperature Range	Device Operating Temperature Range Specification
Temperature Statistics	Device Operating Temperature Statistical Values
Time Hour 24	Device Runtime Since Turn On Device Runtime Warranty Rated Median Useful Life of Luminaire Total Device Power On Time Total Device Runtime Total Light Exposure Time
Time Millisecond 24	Light Control Time Fade Light Control Time Fade On Light Control Time Fade Standby Auto Light Control Time Fade Standby Manual Light Control Time Occupancy Delay Light Control Time Prolong Light Control Time Run On Time Since Motion Sensed
Time Second 16	HVAC Occupancy Minimum Run Time HVAC Occupancy Threshold Time HVAC Vacancy Threshold Time Time Since Presence Detected
Time Second 32	Light Source On Time Not Resettable Light Source On Time Resettable
True Wind Direction	True Wind Direction
True Wind Speed	True Wind Speed

Characteristic	Property
UV Index	UV Index
VOC Concentration	Present Ambient Volatile Organic Compounds Concentration
Voltage	Luminaire Nominal Maximum AC Mains Voltage Luminaire Nominal Minimum AC Mains Voltage Present Input Voltage Present Output Voltage
Voltage Frequency	External Supply Voltage Frequency
Voltage Specification	Input Voltage Range Specification Output Voltage Range
Voltage Statistics	Input Voltage Statistics Output Voltage Statistics
Wind Chill	Wind Chill

Table 3.2: Properties by characteristic

3.3 Property identifiers

Property ID	Property Name
0x0000	Prohibited
0x0001	Average Ambient Temperature in a Period of Day
0x0002	Average Input Current
0x0003	Average Input Voltage
0x0004	Average Output Current
0x0005	Average Output Voltage
0x0006	Center Beam Intensity at Full Power
0x0007	Chromaticity Tolerance
0x0008	Color Rendering Index R9
0x0009	Color Rendering Index Ra
0x000A	Device Appearance
0x000B	Device Country of Origin
0x000C	Device Date of Manufacture
0x000D	Device Energy Use Since Turn On
0x000E	Device Firmware Revision
0x000F	Device Global Trade Item Number
0x0010	Device Hardware Revision
0x0011	Device Manufacturer Name
0x0012	Device Model Number
0x0013	Device Operating Temperature Range Specification

Property ID	Property Name
0x0014	Device Operating Temperature Statistical Values
0x0015	Device Over Temperature Event Statistics
0x0016	Device Power Range Specification
0x0017	Device Runtime Since Turn On
0x0018	Device Runtime Warranty
0x0019	Device Serial Number
0x001A	Device Software Revision
0x001B	Device Under Temperature Event Statistics
0x001C	Indoor Ambient Temperature Statistical Values
0x001D	Initial CIE 1931 Chromaticity Coordinates
0x001E	Initial Correlated Color Temperature
0x001F	Initial Luminous Flux
0x0020	Initial Planckian Distance
0x0021	Input Current Range Specification
0x0022	Input Current Statistics
0x0023	Input Over Current Event Statistics
0x0024	Input Over Ripple Voltage Event Statistics
0x0025	Input Over Voltage Event Statistics
0x0026	Input Under Current Event Statistics
0x0027	Input Under Voltage Event Statistics
0x0028	Input Voltage Range Specification
0x0029	Input Voltage Ripple Specification
0x002A	Input Voltage Statistics
0x002B	Light Control Ambient LuxLevel On
0x002C	Light Control Ambient LuxLevel Prolong
0x002D	Light Control Ambient LuxLevel Standby
0x002E	Light Control Lightness On
0x002F	Light Control Lightness Prolong
0x0030	Light Control Lightness Standby
0x0031	Light Control Regulator Accuracy
0x0032	Light Control Regulator Kid
0x0033	Light Control Regulator Kiu
0x0034	Light Control Regulator Kpd
0x0035	Light Control Regulator Kpu
0x0036	Light Control Time Fade

Property ID	Property Name
0x0037	Light Control Time Fade On
0x0038	Light Control Time Fade Standby Auto
0x0039	Light Control Time Fade Standby Manual
0x003A	Light Control Time Occupancy Delay
0x003B	Light Control Time Prolong
0x003C	Light Control Time Run On
0x003D	Lumen Maintenance Factor
0x003E	Luminous Efficacy
0x003F	Luminous Energy Since Turn On
0x0040	Luminous Exposure
0x0041	Luminous Flux Range
0x0042	Motion Sensed
0x0043	Motion Threshold
0x0044	Open Circuit Event Statistics
0x0045	Outdoor Statistical Values
0x0046	Output Current Range
0x0047	Output Current Statistics
0x0048	Output Ripple Voltage Specification
0x0049	Output Voltage Range
0x004A	Output Voltage Statistics
0x004B	Over Output Ripple Voltage Event Statistics
0x004C	People Count
0x004D	Presence Detected
0x004E	Present Ambient Light Level
0x004F	Present Ambient Temperature
0x0050	Present CIE 1931 Chromaticity Coordinates
0x0051	Present Correlated Color Temperature
0x0052	Present Device Input Power
0x0053	Present Device Operating Efficiency
0x0054	Present Device Operating Temperature
0x0055	Present Illuminance
0x0056	Present Indoor Ambient Temperature
0x0057	Present Input Current
0x0058	Present Input Ripple Voltage
0x0059	Present Input Voltage

Property ID	Property Name
0x005A	Present Luminous Flux
0x005B	Present Outdoor Ambient Temperature
0x005C	Present Output Current
0x005D	Present Output Voltage
0x005E	Present Planckian Distance
0x005F	Present Relative Output Ripple Voltage
0x0060	Relative Device Energy Use in a Period of Day
0x0061	Relative Device Runtime in a Generic Level Range
0x0062	Relative Exposure Time in an Illuminance Range
0x0063	Relative Runtime in a Correlated Color Temperature Range
0x0064	Relative Runtime in a Device Operating Temperature Range
0x0065	Relative Runtime in an Input Current Range
0x0066	Relative Runtime in an Input Voltage Range
0x0067	Short Circuit Event Statistics
0x0068	Time Since Motion Sensed
0x0069	Time Since Presence Detected
0x006A	Total Device Energy Use
0x006B	Total Device Off On Cycles
0x006C	Total Device Power On Cycles
0x006D	Total Device Power On Time
0x006E	Total Device Runtime
0x006F	Total Light Exposure Time
0x0070	Total Luminous Energy
0x0071	Desired Ambient Temperature
0x0072	Precise Total Device Energy Use
0x0073	Power Factor
0x0074	Sensor Gain
0x0075	Precise Present Ambient Temperature
0x0076	Present Ambient Relative Humidity
0x0077	Present Ambient Carbon Dioxide Concentration
0x0078	Present Ambient Volatile Organic Compounds Concentration
0x0079	Present Ambient Noise
0x0080	Active Energy Loadside
0x0081	Active Power Loadside
0x0082	Air Pressure

Property ID	Property Name
0x0083	Apparent Energy
0x0084	Apparent Power
0x0085	Apparent Wind Direction
0x0086	Apparent Wind Speed
0x0087	Dew Point
0x0088	External Supply Voltage
0x0089	External Supply Voltage Frequency
0x008A	Gust Factor
0x008B	Heat Index
0x008C	Light Distribution
0x008D	Light Source Current
0x008E	Light Source On Time Not Resettable
0x008F	Light Source On Time Resettable
0x0090	Light Source Open Circuit Statistics
0x0091	Light Source Overall Failures Statistics
0x0092	Light Source Short Circuit Statistics
0x0093	Light Source Start Counter Resettable
0x0094	Light Source Temperature
0x0095	Light Source Thermal Derating Statistics
0x0096	Light Source Thermal Shutdown Statistics
0x0097	Light Source Total Power On Cycles
0x0098	Light Source Voltage
0x0099	Luminaire Color
0x009A	Luminaire Identification Number
0x009B	Luminaire Manufacturer GTIN
0x009C	Luminaire Nominal Input Power
0x009D	Luminaire Nominal Maximum AC Mains Voltage
0x009E	Luminaire Nominal Minimum AC Mains Voltage
0x009F	Luminaire Power at Minimum Dim Level
0x00A0	Luminaire Time of Manufacture
0x00A1	Magnetic Declination
0x00A2	Magnetic Flux Density - 2D
0x00A3	Magnetic Flux Density - 3D
0x00A4	Nominal Light Output
0x00A5	Overall Failure Condition

Property ID	Property Name
0x00A6	Pollen Concentration
0x00A7	Present Indoor Relative Humidity
0x00A8	Present Outdoor Relative Humidity
0x00A9	Pressure
0x00AA	Rainfall
0x00AB	Rated Median Useful Life of Luminaire
0x00AC	Rated Median Useful Light Source Starts
0x00AD	Reference Temperature
0x00AE	Total Device Starts
0x00AF	True Wind Direction
0x00B0	True Wind Speed
0x00B1	UV Index
0x00B2	Wind Chill
0x00B3	Light Source Type
0x00B4	Luminaire Identification String
0x00B5	Output Power Limitation
0x00B6	Thermal Derating
0x00B7	Output Current Percent
0x00B8	Motion Threshold Steps
0x00B9	Building Floor
0x00BA	Local Asset Identifier
0x00BB	Local Asset Name
0x00BC	Spatial Unit Category
0x00BD	Spatial Unit Name
0x00BE	Coarse Ambient Relative Humidity
0x00BF	Coarse Present Ambient Light Level
0x00C0	HVAC Occupancy Minimum Run Time
0x00C1	HVAC Occupancy Threshold Time
0x00C2	Present Ambient Temperature and Coarse Ambient Relative Humidity
0x00C3	Present Precise Ambient Temperature and Relative Humidity
0x00C4	Subsensor Weights 2
0x00C5	Subsensor Weights 3
0x00C6	Subsensor Weights 4
0x00C7	Subsensor Weights 5
0x00C8	Subsensor Weights 6

Property ID	Property Name
0x00C9	Subsensor Weights 7
0x00CA	Subsensor Weights 8
0x00CB	HVAC Vacancy Threshold Time
All other values	Reserved for Future Use

Table 3.3: Property identifiers

4 References

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